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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/819,515	03/27/2001	Ricardo H. Bruce	23-002	2817

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THE LAW OFFICES OF MIKIO ISHIMARU
1110 SUNNYVALE-SARATOGA ROAD
SUITE A1
SUNNYVALE, CA 94087

EXAMINER

LEROUX, ETIENNE PIERRE

ART UNIT PAPER NUMBER

2171

DATE MAILED: 05/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/819,515

Applicant(s)

BRUCE ET AL.

Examiner

Etienne P LeRoux

Art Unit

2171

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 April 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 December 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-6, 8-12 and 15-19 are rejected under 35 U.S.C. 102(e) as being anticipated by US Pat No. 6,665,813 issued to Forsman et al (hereafter Forsman).

Regarding claims 1, 8 and 15, Forsman discloses:

- defining in the storage device information related to a first data structure [composite code 308, Fig 3] within a plurality of copies of a second data structure [recovery code 304 – copy A , Fig 3, recovery code 306 – copy B, Fig 3]
- rebuilding information related to the first data structure using a copy of one of the plurality of copies of the second data structure upon corruption of another copy of the plurality of copies of the second data structure [col 6, lines 5-15]

Regarding claims 2, 9 and 16, Forsman discloses the storage device performs a write operation; and defining the information related to a first data structure includes updating the plurality of copies of the second data structure prior to the write operation [col 4, lines 43-51]

Regarding claims 3, 10 and 17, Forsman discloses differentiating which of the plurality of copies of the second data structure has the most recent information [col 6, lines 28-38].

Regarding claims 4, 11 and 18, Forsman discloses at most one of the plurality of copies of the second data structure can be corrupted [col 6, lines 28-38]

Regarding claims 5, 6, 12 and 19, Forsman discloses rebuilding the information related to the first data structure includes using one or more of the plurality of copies of the second data structure [Fig 4, col 5, line 44 - col 6, line 3]

Regarding claim 22, Forsman discloses wherein defining in the storage device information related to the first data structure within a plurality of copies of a second data structure includes associating a memory address to the first data structure [col 4, lines 18-32]

Regarding claim 23, Forsman discloses wherein defining in the storage device information related to the first data structure within a plurality of copies of a second data structure includes creating a first base block copy and a second base block copy [col 4, lines 33-42]

Claims 15-19 are rejected under 35 U.S.C. 102(b) as being anticipated by US Pat No 5,239,640 issued to Froemke et al (hereafter Froemke).

Regarding claim 15, Froemke discloses defining in the non-volatile memory a location of a data structure with at least two base block copies [col 1, lines Fig 1, 22 and 26, Fig 2, 30-36], and rebuilding the location of the data structure in the event one base block copy cannot be located or verified by using another base block copy [col 4, lines 28-36].

Regarding claim 16, Froemke discloses wherein the non-volatile memory performs write operations, and the base block copies are updated to a write operation [col 3, lines 35-37, col 6, lines 44-50].

Regarding claim 17, Froemke discloses wherein rebuilding the location of the data structure includes differentiating which base block copy has the most recent data [col 8, lines 32-44]

Regarding claim 18: Froemke discloses wherein defining the location of the data structure includes selecting each of the base copies so at most one can be corrupted [col 4, lines 37-43]

Regarding claim 19, Froemke discloses wherein the non-volatile memory has an intended state, and at least one of the base block copies can be used to rebuild the intended state of the non-volatile memory before corruption thereof [col 9, lines 1-9].

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 7, 13, 14, 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Forsman as applied to claim 1 above, and further in view of US Pat No 6,170,066 issued to See (hereafter See '066]

Regarding claims 7, 14 and 21, Froemke '640 discloses the essential elements of the claimed invention except for pre-erased recovery blocks. See '066 discloses pre-erased recovery blocks [col 1, line 59 through col 2, line 6]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Froemke '640 to include pre-erased

recovery blocks as taught by See '066 for the purpose of providing a means to store data in a storage device comprising flash EEPROM [col 1, lines 50-55].

Regarding claims 13 and 20, Forsman discloses the essential elements of the claimed invention except for pointers to other data structures. See '066 discloses pointers to other data structures [col 7, lines 12-15]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Forsman to include pointers to other data structures as taught by See '066 for the purpose of indicating an empty data structure [col 7, line 12-15].

5. Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Froemke as applied to claim 15 above, and further in view of. US Pat No 6,170,066 issued to See (hereafter See '066]

Regarding claim 21, Froemke discloses the essential elements of the claimed invention except for pre-erased recovery blocks. See discloses pre-erased recovery blocks [col 1, line 59 through col 2, line 6]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Froemke to include pre-erased recovery blocks as taught by See '066 for the purpose of providing a means to store data in a storage device comprising flash EEPROM [col 1, lines 50-55].

Regarding claim 20, Froemke discloses the essential elements of the claimed invention except for pointers to other data structures. See discloses pointers to other data structures [col 7, lines 12-15]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Froemke to include pointers to other data structures as taught by See for the purpose of indicating an empty data structure [col 7, line 12-15].

Response to Arguments

Applicant's arguments with respect to claims 1-14, 21 and 22 have been considered but are moot in view of the new ground(s) of rejection necessitated by applicant's amending of claims 1, 5, 6, 8-12 and 14.

Claim 15:

Applicant states in the second paragraph on page 16 "Froemke does not disclose or suggest 'a data structure with at least two base block copies' as recited in claim 15." Examiner is not persuaded. Froemke discloses the following in column 4, lines 28-35:

Data initially stored in the write staging area 26 is subsequently written to the DASD assemblies 30-36 and check sum information is calculated and written to the checksum DASD assembly 38. these data calculation and writing functions are controlled as described below independently of the operation of the CPU 14 and without substantially reducing the accessibility of the storage system 12 to further write and read commands.

Claims 16-21:

The rejection of the limitations of claims 16-21 are clearly identified in supra office action.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after

Art Unit: 2171

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Etienne LeRoux whose telephone number is (703) 305-0620. The examiner can normally be reached on Monday – Friday from 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Safet Metjahic, can be reached on (703) 308-1436.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Etienne LeRoux

5/10/2004



SAFET METJAHIC
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100